Online Appendix
Unequal trade, unequal gains: the heterogeneous impact of MERCOSUR

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A Theoretical appendix

A.1 Structural gravity

We interpret our results through the lens of a generic structural gravity model. Let $X_{ij} \geq 0$ denote trade flows from country i (the exporter) to country j (the importer). The case $i = j$ denotes intra-national (domestic) trade flows and $i \neq j$ denotes international trade flows. A standard definition of a structural gravity model of trade (e.g., Head and Mayer, 2014) is a model where bilateral trade flows satisfy the following multiplicative relationship

$$X_{ij} = \frac{Y_i}{\Omega_i} \frac{E_j}{\Pi_j} \theta_{ij}, \tag{1}$$

where production in country i is $Y_i \stackrel{\text{def}}{=} \sum_j X_{ij}$ and expenditure in country j is $E_j \stackrel{\text{def}}{=} \sum_i X_{ij}$. Structural gravity models also satisfy two additional conditions:

$$\Omega_i = \sum_k \frac{E_k}{\Pi_k} \theta_{ik} \tag{2}$$

and

$$\Pi_j = \sum_k \frac{Y_k}{\Omega_k} \theta_{kj}. \tag{3}$$

The term Ω_i is an outward resistance term. It is specific to the exporting country i and measures i's access to potential export markets. The term Π_j is an inward resistance term; it measures how much competition trade flows from any origin face in destination country j. Higher values of any of these terms lead to lower bilateral trade flows, which is why they are called multilateral resistance terms. The remaining element in the equation is θ_{ij}, which captures all bilateral details that affect trade flows from country i to j, such as geographical or cultural distance between countries, tariffs, and other bilateral non-tariff hindrances to trade. Higher bilateral trading costs correspond to lower values of θ_{ij}. Bilateral trade costs are fully described by the matrix $\theta \stackrel{\text{def}}{=} [\theta_{i,j}]_{N \times N}$, where N is the number of countries in the world.

Trade shares are defined as the ratio of trade that flows from country i to j to expenditure in the importing country:

$$\lambda_{ij} \stackrel{\text{def}}{=} \frac{X_{ij}}{E_j} \tag{4}$$

By definition, trade shares are non-negative and sum to 1 when summed over i. The trade share λ_{ii} is the fraction of goods imported by country i from itself. It is a measure of how closed to trade country i is.

The signature of a new trade agreement affects tariffs between countries, and therefore modifies entries in the matrix θ. This will affect trade flows and, in general, all the elements in the structural gravity relationship (1). With the usual hat-notation (for any variable x, we denote the change in this variable by $\hat{x} = \frac{x'}{x}$), the change in bilateral trade flows in response to the change $\hat{\theta} = \frac{\theta'}{\theta}$ is given by Using hat-notation,

$$\hat{X}_{ij} = \frac{X'_{ij}}{X_{ij}} = \frac{Y'_i}{Y_i}\frac{\Omega_i}{\Omega'_i}\frac{E'_j}{E_j}\frac{\Pi_j}{\Pi'_j}\frac{\theta'_{ij}}{\theta_{ij}} = \frac{\hat{Y}_i}{\hat{\Omega}_i}\frac{\hat{E}_j}{\hat{\Pi}_j}\hat{\theta}_{ij}, \tag{5}$$

where

$$\Omega'_i = \sum_k \frac{E'_k}{\Pi'_k}\theta'_{ik} \tag{6}$$

and

$$\Pi'_j = \sum_k \frac{Y'_k}{\Omega'_k}\theta'_{kj}. \tag{7}$$

It is not evident from (5) how equilibrium trade flows can be solved for because the change $\hat{\theta}$ produces an endogenous response of $\hat{Y}_i$ and $\hat{\Omega}_i$ for all exporters and $\hat{E}_j$ and $\hat{\Pi}_j$ for all importers. However, a combination of adding-up identities coupled with common patterns across various structural models yield a greatly simplified problem. In particular, assuming that an inelastic supply of labor is the only factor of production, and denoting the wage level in country i by w_i, the Armington, Eaton-Kortum, Melitz, etc, models all lead to the same recursive system of equations.[1]

From the definition of the trade share,

$$\hat{\lambda}_{ij} = \frac{\hat{Y}_i}{\hat{\Omega}_i}\frac{\hat{\theta}_{ij}}{\hat{\Pi}_j}. \tag{8}$$

A result that was first derived by Dekle et al. (2007) for the Eaton-Kortum model, but which holds more generally in structural gravity models, is that

$$\hat{\lambda}_{ij} = \frac{\frac{\hat{Y}_i}{\hat{\Omega}_i}\hat{\theta}_{ij}}{\sum_k \lambda_{kj}\frac{\hat{Y}_k}{\hat{\Omega}_k}\hat{\theta}_{kj}}. \tag{9}$$

Notice that this implies

$$\hat{\Pi}_j = \sum_k \lambda_{kj}\frac{\hat{Y}_k}{\hat{\Omega}_k}\hat{\theta}_{kj}. \tag{10}$$

Structural models all have in common that $\frac{Y_i}{\Omega_i} = A_i w_i^{\varepsilon}$, where $A_i > 0$ is a technological or population constant and $\epsilon < 0$ is the trade elasticity (cf. Head and Mayer, table 3.1). Therefore, $\frac{\hat{Y}_k}{\hat{\Omega}_k} = (\hat{w}_k)^{\epsilon}$, and changes in shares depend exclusively on changes in wages and bilateral trade costs.

$$\hat{\lambda}_{ij} = \frac{(\hat{w}_i)^{\epsilon}\hat{\theta}_{ij}}{\sum_k \lambda_{kj}(\hat{w}_k)^{\epsilon}\hat{\theta}_{kj}} \tag{11}$$

[1] While our method of choice is fairly general in that it encompasses various well-known trade models, it does leave out some factors, such as some dynamic effects of trade agreements, varying input-output linkages, etc. However, it is usually considered a good benchmark for computing the general equilibrium effects of trade policies (Costinot and Rodriguez-Clare, 2014).

If labor is the only factor of production, so that $Y_i = w_i L_i$ and L_i is held fixed, then $\hat{Y}_i = \hat{w}_i$, so that the change is GDP can be substituted into the above equation.

Market clearing implies

$$\hat{w}_i = \hat{Y}_i = \frac{1}{Y_i} \sum_j \lambda'_{ij} E'_j \tag{12}$$

$$= \frac{1}{Y_i} \sum_j \lambda_{ij} \hat{\lambda}_{ij} E'_j \tag{13}$$

$$= \frac{1}{Y_i} \sum_j \frac{\lambda_{ij} (\hat{w}_i)^{\epsilon} \hat{\theta}_{ij}}{\sum_k \lambda_{kj} (\hat{w}_k)^{\epsilon} \hat{\theta}_{kj}} E'_j \tag{14}$$

$$\tag{15}$$

In general, expenditure does not equal production because there are trade deficits. A trade deficit is defined by $E_j = Y_j + D_j$ and $E'_j = Y_j \hat{Y}_j + D_j \hat{D}_j$. There are two common assumptions that are commonly made to deal with the evolution of trade deficits. The most common assumption (multiplicative deficit) is that the deficit evolves in proportion to GDP, so that $\hat{D}_j = \hat{Y}_j$. An alternative assumption (additive deficit) is that the deficit remains constant and $\hat{D}_j = 1$. In the first case, $E'_j = E_j \hat{Y}_j = E_j \hat{w}_j$ and in the second case $E'_j = Y_j \hat{Y}_j + D_j = Y_j \hat{w}_j + D_j$. We choose the multiplicative assumption and obtain

$$\hat{w}_i = \frac{1}{Y_i} \sum_j \frac{\lambda_{ij} (\hat{w}_i)^{\epsilon} \hat{\theta}_{ij}}{\sum_k \lambda_{kj} (\hat{w}_k)^{\epsilon} \hat{\theta}_{kj}} E_j \hat{w}_j. \tag{16}$$

This equation can be solved for wages $\{\hat{w}_i\}$. Once obtained, the other variables follow from

$$\hat{Y}_i = \hat{w}_i \tag{17}$$

$$\hat{E}_i = \hat{w}_i \tag{18}$$

$$\hat{\Omega}_i = (\hat{w}_i)^{1-\epsilon} \tag{19}$$

$$\hat{\Pi}_j = \sum_k \lambda_{kj} (\hat{w}_k)^{\epsilon} \hat{\theta}_{kj} \tag{20}$$

$$\hat{\lambda}_{ij} = \frac{(\hat{w}_i)^{\epsilon}}{\hat{\Pi}_j} \hat{\theta}_{ij} \tag{21}$$

$$\hat{X}_{ij} = \frac{\hat{Y}_i}{\hat{\Omega}_i} \frac{\hat{E}_j}{\hat{\Pi}_j} \hat{\theta}_{ij} = \hat{\lambda}_{ij} \hat{E}_j = \frac{(\hat{w}_i)^{\epsilon} \hat{w}_j}{\hat{\Pi}_j} \hat{t}_{ij} \tag{22}$$

See Baier et al. (2019) for the solution when the additive assumption is made.

Because of Walras Law, the fixed-point problem in (16) is homogeneous of degree zero in wages, and the solution requires a normalization to pin down the change in nominal wages between scenarios. We use the same normalization as Baier et al. (2019) and set the level of nominal wages so that that nominal world output stays constant between scenarios.[2] This assumption

[2]With this normalization, the fixed-point problem can be solved in Stata with an extremely fast procedure using the excellent `ge_gravity` package by Thomas Zylkin.

is particularly appealing in our case because we consider changes in trade policy involving MERCOSUR countries, who represent a small fraction of world trade and world GDP.

Structural gravity models usually assume utility functions that imply that the change in welfare, or gains from trade, equals the change in expenditure relative to the change in a price index P_i, with $\hat{P}_i = \hat{\Pi}_i^{1/\epsilon}$. In this case, the formula by Arkolakis et al. (2012) is obtained:

$$\hat{G}_i = \frac{\hat{E}_i}{\hat{\Pi}_i^{1/\epsilon}} = \frac{\hat{w}_i}{\hat{\Pi}_i^{1/\epsilon}} = \left(\frac{(\hat{w}_i)^\epsilon}{\hat{\Pi}_i}\right)^{1/\epsilon} = \hat{\lambda}_{ii}^{1/\epsilon}. \tag{23}$$

The second equality requires the multiplicative assumption and the last equality follows because $\hat{\theta}_{ii} = 1$.

A.2 Tradeoffs

Agreements among countries imply different values of θ. We denote the set of all possible configurations of trade costs by Θ. This set includes at least two configurations of trade costs to make the problem non-trivial.

Let the real-valued function $r_i(c(\theta), \theta)$ capture the tradeoffs produced by moving to different trade agreements. These tradeoffs include all additional issues which the decision-maker cares about. Examples include the motivations discussed in the main text. We assume that the decision-maker can control the continuous function $r_i(c(\theta), \theta)$ through an arbitrary vector of choice variables c chosen from a compact set $C(\theta)$, which may also depend on θ.

The decision-maker of country i therefore chooses $\theta \in \Theta$ and a vector of choices $c(\theta) \in C(\theta)$ to maximize the value

$$v_i(\theta) = r_i(c(\theta), \theta) G_i(\theta), \tag{24}$$

where we assume both terms to be positive. Given the structure of the payoff function, the problem faced by the decision-maker can be decomposed into two steps: a step in which $c(\theta)$ is optimally chosen for any value of θ to maximize $r_i(c(\theta), \theta)$, and a second step that optimizes over values of θ. Formally, for any given θ, we denote the solution to the first problem as

$$R_i(\theta) = \max_{c \in C(\theta)} r_i(c, \theta). \tag{25}$$

The maximized function $R_i(\theta) = r_i(c^*(\theta))$ incorporates the optimal adjustments made by the decision-maker for any possible value of θ. This solution is guaranteed to exist if $r(\cdot)$ is continuous (because $C(\theta)$ is assumed to be a compact set for all θ). The optimum $c^*(\theta)$ does not need to be unique but the value of $R_i(\theta)$ is guaranteed to exist and to be unique.

The second optimization step of the decision-maker can then be expressed as the maximization of

$$V_i(\theta) = R_i(\theta) G_i(\theta) \tag{26}$$

over different choices of $\theta \in \Theta$.

This implies, after taking the logarithm and differentiating,

$$\frac{dV_i}{V_i} = \frac{dR_i}{R_i} + \frac{dG_i}{G_i}. \tag{27}$$

For discrete changes, the following approximation holds:

$$\frac{\Delta V_i}{V_i} \approx \frac{\Delta R_i}{R_i} + \frac{\Delta G_i}{G_i}. \tag{28}$$

B Data appendix

We use the UNCTAD/WTO database (Yotov et al., 2016) which includes both international and intra-national manufacturing trade flows (bilateral exports and imports) for 69 countries over the 21-year period spanning from 1986–2006. In this database, the primary source for international (bilateral) trade flows is UN COMTRADE and the primary source for intra-national data is the CEPII TradeProd dataset.

Paraguay is not included in the UNCTAD/WTO database. Unfortunately, data on gross manufacturing for Paraguay are spotty in CEPII TradeProd. Therefore, we infer manufacturing gross output for Paraguay from data on value added. We compute the ratio of gross manufacturing output to value added in manufacturing for those years in which data on gross output are available from CEPII TradeProd and then construct gross output as the value added times the average of this ratio.

We obtain the international trade flows of Paraguay from the Observatory for Economic Complexity (OEC), who in turn source the data from UN COMTRADE and adjust it with mirroring techniques. When we detected trade flows not classified in any SITC category (labeled "ZZ" in the OEC database), we used WITS data on bilateral manufacturing trade flows (classified following the same SITC classification used for the OEC database) instead, as long as WITS data was available for all years. We changed both directional flows in this case, for consistency. If WITS data was not available, then we used OEC data (without the "ZZ" category). We compute intra-national trade flows as the difference between our computed series for gross production and total manufacturing exports.

C Tables

Table 1: Time-varying impact of MERCOSUR

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
M × 1987	-0.082	-0.028	-0.055			-0.054
	(0.079)	(0.117)	(0.085)			(0.087)
M × 1988	0.034	0.124	0.029	0.030		0.035
	(0.054)	(0.123)	(0.095)	(0.092)		(0.103)
M × 1989	0.195	0.613***	0.489***			0.513***
	(0.135)	(0.111)	(0.099)			(0.105)
M × 1990	0.259**	0.385**	0.194	0.194	0.193*	0.201
	(0.121)	(0.156)	(0.143)	(0.133)	(0.104)	(0.145)
M × 1991	0.290***	0.599***	0.394***			0.402***
	(0.046)	(0.041)	(0.044)			(0.052)
M × 1992	0.433***	0.979***	0.734***	0.734***		0.738***
	(0.097)	(0.140)	(0.104)	(0.107)		(0.110)
M × 1993	0.552***	1.195***	0.923***			0.917***
	(0.065)	(0.062)	(0.060)			(0.066)
M × 1994	0.506***	1.319***	0.995***	0.997***	0.994***	0.987***
	(0.091)	(0.067)	(0.071)	(0.061)	(0.055)	(0.070)
M × 1995	0.566***	1.498***	1.112***			1.072***
	(0.083)	(0.078)	(0.070)			(0.062)
M × 1996	0.685***	1.650***	1.253***	1.255***		1.223***
	(0.078)	(0.065)	(0.062)	(0.056)		(0.058)
M × 1997	0.793***	1.892***	1.419***			1.384***
	(0.087)	(0.082)	(0.066)			(0.065)
M × 1998	0.845***	1.937***	1.419***	1.421***	1.418***	1.362***
	(0.078)	(0.103)	(0.077)	(0.073)	(0.063)	(0.076)
M × 1999	0.783***	1.866***	1.356***			1.274***
	(0.080)	(0.063)	(0.063)			(0.069)
M × 2000	0.860***	1.888***	1.328***	1.329***		1.232***
	(0.123)	(0.055)	(0.085)	(0.085)		(0.091)
M × 2001	0.778***	1.861***	1.290***			1.194***
	(0.131)	(0.057)	(0.091)			(0.102)
M × 2002	0.677***	1.762***	1.230***	1.233***	1.233***	1.123***
	(0.170)	(0.100)	(0.111)	(0.117)	(0.130)	(0.124)
M × 2003	0.772***	1.986***	1.412***			1.315***
	(0.253)	(0.161)	(0.189)			(0.202)
M × 2004	0.783***	2.205***	1.598***	1.602***		1.495***
	(0.253)	(0.176)	(0.212)	(0.213)		(0.226)
M × 2005	0.818***	2.310***	1.687***			1.583***
	(0.267)	(0.207)	(0.236)			(0.249)
M × 2006	0.836***	2.328***	1.680***	1.684***	1.688***	1.560***
	(0.249)	(0.188)	(0.210)	(0.212)	(0.213)	(0.224)
GSP	-0.224***	-0.265***	-0.188***	-0.184***	-0.141***	-0.216***
	(0.056)	(0.063)	(0.055)	(0.056)	(0.054)	(0.063)
PTA	0.002	0.391***	0.258***	0.260***	0.283***	0.255***
	(0.061)	(0.123)	(0.089)	(0.078)	(0.098)	(0.095)
FTA	0.061*	0.578***	0.255***	0.252***	0.273***	0.218**
	(0.032)	(0.108)	(0.084)	(0.085)	(0.105)	(0.097)
CU	0.213***	0.752***	0.430***	0.454***	0.503***	0.407***
	(0.060)	(0.127)	(0.117)	(0.112)	(0.112)	(0.122)
CM	0.129*	0.962***	0.324***	0.349***	0.380***	0.248*
	(0.076)	(0.130)	(0.117)	(0.114)	(0.111)	(0.141)
ECU	0.073	1.066***	0.255**	0.280**	0.324***	0.125
	(0.091)	(0.137)	(0.122)	(0.119)	(0.114)	(0.155)
Observations	101,430	102,900	102,900	53,812	29,280	102,900
Intranational trade	no	yes	yes	yes	yes	yes
Border × year	no	no	yes	yes	yes	yes
log distance × year	no	no	no	no	no	yes
p avg(1986–1990) = avg(1991–1994)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
p avg(1991–1994) = avg(1995–2006)	0.0055	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: The dependent variable are nominal bilateral trade flows. All specifications include exporter-time, importer-time and country pair fixed effects. Standard errors are clustered by exporter, importer and year. The baseline specfication described in the text is shown as specification (3). With respect to the baseline, specifications (1) omits intra-national trade and specification (2) omits border-year interactions. Specifications (4) and (5) use data only every two or four years, as in the study by Cheng and Wall (2005). Specifications (6) adds log distance-year dummies as a control. The last two rows use a chi-squared test with the null hypothesis that the average of coefficients of μ_t over different periods are equal to each other.

Table 2: Heterogeneous impact of MERCOSUR

VARIABLES	(1)	(2)	(3)
ARG ↔ BRA × 1991–1994	0.938***		
	(0.138)		
ARG ↔ PRY × 1991–1994	0.828***		
	(0.236)		
ARG ↔ URY × 1991–1994	0.613**		
	(0.253)		
BRA ↔ PRY × 1991–1994	0.103		
	(0.127)		
BRA ↔ URY × 1991–1994	-0.012		
	(0.138)		
PRY ↔ URY × 1991–1994	0.399***		
	(0.120)		
ARG ↔ BRA × 1995–2006	1.707***		
	(0.177)		
ARG ↔ PRY × 1995–2006	1.056***		
	(0.295)		
ARG ↔ URY × 1995–2006	0.738***		
	(0.107)		
BRA ↔ PRY × 1995–2006	0.470**		
	(0.197)		
BRA ↔ URY × 1995–2006	0.006		
	(0.119)		
PRY ↔ URY × 1995–2006	1.191***		
	(0.171)		
ARG → BRA × 1991–1994		1.045***	0.803***
		(0.163)	(0.227)
ARG → PRY × 1991–1994		0.702***	0.749***
		(0.181)	(0.219)
ARG → URY × 1991–1994		0.765***	0.264
		(0.296)	(0.177)
BRA → ARG × 1991–1994		0.874***	1.104***
		(0.267)	(0.183)
BRA → PRY × 1991–1994		-0.055	0.127
		(0.209)	(0.139)
BRA → URY × 1991–1994		-0.114	-0.165
		(0.154)	(0.117)
PRY → ARG × 1991–1994		1.671***	1.442***
		(0.347)	(0.269)
PRY → BRA × 1991–1994		1.474***	0.126
		(0.305)	(0.217)
PRY → URY × 1991–1994		1.505***	0.072
		(0.380)	(0.335)
URY → ARG × 1991–1994		0.464	1.033***
		(0.360)	(0.229)
URY → BRA × 1991–1994		0.152	0.201
		(0.167)	(0.149)
URY → PRY × 1991–1994		0.230	0.479***
		(0.250)	(0.156)
ARG → BRA × 1995–2006		1.622***	1.389***
		(0.220)	(0.314)
ARG → PRY × 1995–2006		0.902***	0.955***
		(0.250)	(0.281)
ARG → URY × 1995–2006		1.030***	0.535*
		(0.337)	(0.287)
BRA → ARG × 1995–2006		1.778***	1.991***
		(0.108)	(0.335)
BRA → PRY × 1995–2006		0.438**	0.613***
		(0.188)	(0.214)
BRA → URY × 1995–2006		-0.012	-0.069
		(0.090)	(0.245)
PRY → ARG × 1995–2006		1.979***	1.736***
		(0.209)	(0.327)
PRY → BRA × 1995–2006		0.555***	-0.795***
		(0.203)	(0.258)
PRY → URY × 1995–2006		2.783***	1.348***
		(0.258)	(0.288)
URY → ARG × 1995–2006		0.289	0.842***
		(0.237)	(0.272)
URY → BRA × 1995–2006		0.047	0.092
		(0.129)	(0.243)
URY → PRY × 1995–2006		0.749***	0.991***
		(0.275)	(0.108)
Observations	102,900	102,900	102,543
Symmetric pair FE	yes	yes	no
Directional pair FE	no	no	yes

Notes for the table on next page.

Table 2: Heterogeneous impact of MERCOSUR (cont.)

VARIABLES	(1)	(2)	(3)
GSP	-0.188***	-0.188***	-0.006
	(0.055)	(0.055)	(0.064)
PTA	0.258***	0.258***	0.314***
	(0.089)	(0.089)	(0.103)
FTA	0.254***	0.254***	0.300***
	(0.084)	(0.084)	(0.088)
CU	0.429***	0.429***	0.475***
	(0.117)	(0.117)	(0.120)
CM	0.323***	0.323***	0.367***
	(0.117)	(0.117)	(0.119)
ECU	0.254**	0.254**	0.289**
	(0.122)	(0.122)	(0.126)
Border × 1986	-0.767***	-0.767***	-0.771***
	(0.084)	(0.084)	(0.086)
Border × 1987	-0.747***	-0.747***	-0.751***
	(0.079)	(0.079)	(0.080)
Border × 1988	-0.667***	-0.667***	-0.670***
	(0.078)	(0.078)	(0.079)
Border × 1989	-0.625***	-0.625***	-0.632***
	(0.079)	(0.079)	(0.080)
Border × 1990	-0.554***	-0.554***	-0.559***
	(0.070)	(0.070)	(0.070)
Border × 1991	-0.537***	-0.537***	-0.542***
	(0.068)	(0.068)	(0.068)
Border × 1992	-0.513***	-0.513***	-0.518***
	(0.062)	(0.062)	(0.062)
Border × 1993	-0.470***	-0.470***	-0.474***
	(0.057)	(0.057)	(0.057)
Border × 1994	-0.402***	-0.402***	-0.406***
	(0.054)	(0.054)	(0.053)
Border × 1995	-0.326***	-0.326***	-0.330***
	(0.048)	(0.048)	(0.047)
Border × 1996	-0.313***	-0.313***	-0.317***
	(0.051)	(0.051)	(0.050)
Border × 1997	-0.225***	-0.225***	-0.228***
	(0.047)	(0.047)	(0.046)
Border × 1998	-0.173***	-0.173***	-0.174***
	(0.038)	(0.038)	(0.035)
Border × 1999	-0.179***	-0.179***	-0.179***
	(0.045)	(0.045)	(0.042)
Border × 2000	-0.122***	-0.122***	-0.121***
	(0.039)	(0.039)	(0.038)
Border × 2001	-0.109***	-0.109***	-0.108***
	(0.032)	(0.032)	(0.031)
Border × 2002	-0.140***	-0.140***	-0.140***
	(0.021)	(0.021)	(0.019)
Border × 2003	-0.094***	-0.094***	-0.093***
	(0.018)	(0.018)	(0.016)
Border × 2004	-0.052***	-0.052***	-0.051***
	(0.010)	(0.010)	(0.014)
Border × 2005	-0.030*	-0.030*	-0.029
	(0.018)	(0.018)	(0.022)
Observations	102,900	102,900	102,543
Symmetric pair FE	yes	yes	no
Directional pair FE	no	no	yes

Notes: The dependent variable are nominal bilateral trade flows. All specifications include exporter-time, importer-time and either symmetric of directional pair fixed effects. Standard errors are clustered by exporter, importer and year.

D Additional results

D.1 Homogeneous within-bloc trade cost reduction

Table 3: General equilibrium trade impact of MERCOSUR of a homogeneous within-bloc trade cost estimate[a]

from/to	Argentina	Brazil	Paraguay	Uruguay	MERCOSUR[b]	RoW[c]	All destinations
1991-1994							
Argentina	*-1.8*	101	71	86	95	2	15
Brazil	83	*0.0*	65	79	80	-2	5
Paraguay	103	114	*-5.2*	98	109	9	35
Uruguay	86	96	68	*-5.8*	90	0	28
MERCOSUR[b]	83	100	67	82	86	-1	8
RoW[c]	-4	2	-13	-6	-1	0.0	0.0
All origins	9	7	0	21	8	0.0	0.1
1995-2006							
Argentina	*-4.9*	250	162	202	239	-2	26
Brazil	224	*-0.8*	160	202	215	-2	9
Paraguay	299	326	*-9.3*	271	305	21	85
Uruguay	239	258	169	*-11.5*	248	2	45
MERCOSUR[b]	225	251	161	202	227	-2	14
RoW[c]	-5	1	-24	-13	-2	0.0	0.0
All origins	22	10	-1	30	13	0.0	0.2

[a] Percent change in trade flows in general equilibrium computed for a trade elasticity of 4. Exporters are in rows, importers in columns. Intra-national trade flows (on the diagonals) are shown in italics. All other cells exclude intra-national trade. Changes are expressed with respect to a counterfactual in which trade intensification due to MERCOSUR does not occur and are measured in percentage points. The coefficients used for the computations are from a specification similar to the one in Table 2, column (3), but restricting coefficients to be the same for all directional pairs within MERCOSUR.

[b] The definition of MERCOSUR excludes the own country in cells that show a trade flow from/to Argentina, Brazil, Paraguay, or Uruguay. In all other cells, these four countries are included in the definition.

[c] RoW (rest of the world): all countries except the MERCOSUR countries: Argentina, Brazil, Paraguay, and Uruguay.

D.2 Exclusion of data on Paraguay

Table 4: General equilibrium trade impact of MERCOSUR excluding all data on Paraguay[a]

from/to	Argentina	Brazil	Paraguay	Uruguay	MERCOSUR[b]	RoW[c]	All destinations
1991-1994							
Argentina	*-2.8*	139	—	50	113	5	19
Brazil	172	*0.1*	—	-9	110	-2	5
Paraguay	—	—	—	—	—	—	—
Uruguay	135	14	—	*-0.1*	52	-9	12
MERCOSUR[b]	168	97	—	9	102	-1	8
RoW[c]	-8	2	—	10	-1	0.0	0.0
All origins	10	7	—	10	9	0.0	0.1
1995-2006							
Argentina	*-6.0*	310	—	71	248	1	29
Brazil	540	*-0.7*	—	-10	299	-2	9
Paraguay	—	—	—	—	—	—	—
Uruguay	108	9	—	*-2.8*	30	-1	9
MERCOSUR[b]	483	213	—	18	232	-1	14
RoW[c]	-9	1	—	-1	-1	0.0	0.0
All origins	24	10	—	7	13	0.0	0.1

[a] Percent change in trade flows in general equilibrium computed for a trade elasticity of 4. Both the estimation and the general equilibrium computation exclude all data on Paraguay. Exporters are in rows, importers in columns. Intra-national trade flows (on the diagonals) are shown in italics. All other cells exclude intra-national trade. Changes are expressed with respect to a counterfactual in which trade intensification due to MERCOSUR does not occur and are measured in percentage points. The coefficients used for the computations are from a specification with heterogeneous directional trade effects similar to the one in Table 2, column (3), but where all observations involving Paraguay have been dropped.

[b] The definition of MERCOSUR excludes the own country in cells that show a trade flow from/to Argentina, Brazil, or Uruguay. In all other cells, these three countries are included in the definition.

[c] RoW (rest of the world): all countries except the MERCOSUR countries: Argentina, Brazil, and Uruguay.

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